Abstracts

Wide-Band GaInAs MISFET Amplifiers (Short Papers)

D. Bechtle, L.C. Upadhyayula, P.D. Gardner and S.Y. Narayan. "Wide-Band GaInAs MISFET Amplifiers (Short Papers)." 1989 Transactions on Microwave Theory and Techniques 37.10 (Oct. 1989 [T-MTT]): 1636-1638.

We present the first reported results on wide-hand GaInAs MISFET amplifiers. Using 1-µm-gate-length 0.56-mm-gate-width GaInAs MISFET's, we obtained (a) a power output of 230±30 mW (0.41 W/mm) with 33±3 percent power-added efficiency, (b) a power output of 265±5 mW (0.47 W/mm) with 30±3 percent power-added efficiency (both over the 7-11 GHz baud), and (c) a power output of 220±45 mW (0.39 W/mm) with 29±4 percent power-added efficiency over the 6-12 GHz band. With a 0.7-µm-gate-length GaInAs MESFET, a small-sigal gain of 5±0.5 dB over the 11.4--22.6 GHz band was obtained. These data include all connector, bias network, and circuit losses. We also present an equivalent circuit model of 1- µm-gate-length GaInAs MISFET's based on S-parameter measurements. The model is essentially that of a MESFET with capacitors representing gate-to-source and gate-to drain overlap capacitances added at input and output.

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